



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/820,160

04/08/2004

Shinsuke Takeguchi

43888-296

7038

7590 07/30/2008
MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

ONEILL, KARIE AMBER

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

07/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/820,160	Applicant(s) TAKEGUCHI ET AL.	
	Examiner Karie O'Neill	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-18 is/are pending in the application.
- 4a) Of the above claim(s) 10-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Applicant's amendment filed on April 25, 2008, was received. Claims 1 and 8-9 have been amended. Claim 7 has been cancelled. Claims 10-18 have been withdrawn from consideration. No new claims have been added. Therefore, Claims 1-6 and 8-9 are pending in this office action.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on January 25, 2008.

Priority

3. The certified English translation of JP 2003-104917 has been considered.

Claim Rejections - 35 USC § 102

4. The rejection of Claims 1, 3-6 and 8 under 35 U.S.C. 102(e) as being anticipated by Yoshimoto et al. (US 20030104265 A1), is maintained.

With regard to Claim 1, Yoshimoto et al. discloses in Figures 1-2 and 5, a polymer electrolyte fuel cell (5, D) comprising a cell stack (2, E) including a hydrogen ion conductive polymer electrolyte membrane (A), a pair of electrodes (B,C) sandwiching said membrane and a pair of conductive separators (H), one of which has a gas flow channel for supplying and exhausting a fuel gas to and from one of said electrodes and the other has a gas flow channel for supplying and exhausting an oxidant gas to and from the other electrode (paragraphs 0003-0004 and 0021-0022).

Yoshimoto et al. discloses in Figures 1 and 2, wherein at least one of said gas flow channels (1a) is connected to an inlet manifold (6) at a junction, wherein the lowermost part of said junction is positioned above a gas supply pipe (6a) connected to said inlet manifold (6) (paragraph 0023), and said gas supply pipe (6a) is extended into said inlet manifold in the laminating direction, or thickness direction, of said cell stack (paragraph 0023).

With regard to Claim 3, Yoshimoto et al. discloses in Figure 2, wherein said inlet manifold (6) has a vertically oriented cross-section.

With regard to Claim 4, Yoshimoto et al. discloses in Figure 2, wherein a junction of gas supply pipe (6a) with said inlet manifold (6) is positioned below the center of the inlet manifold (6). This can be seen in Figure 2 where the supply pipe (6a) is located at the bottom portion of the manifold (6) and the flow channels (1a) are located at the top portion of the manifold (6).

With regard to Claim 5, Yoshimoto et al. discloses in Figure 6, wherein said at least one of said gas flow channel is connected to an outlet manifold (K), which has a gas exhaust pipe connection (L), and wherein the junctions of said gas flow channel and said gas exhaust pipe (L) with said outlet manifold (K) are positioned in a lower part of said outlet manifold (paragraph 0004).

With regard to Claim 6, Yoshimoto et al. discloses in Figure 3, wherein said inlet manifold (6) has a constriction, a point at which the manifold curves around a cylindrical/tubular piercing member (4), between said gas supply pipe (6a) connection and said lowermost part of said gas flow channel connected. The gas flow into the

manifold (6) is flow-regulated because a flow passage is narrowed by the piercing member (4), and because of this, gas dispersion is promoted in the manifold (6) and the gas distribution/supply of gas to each cell is unified (paragraph 0026).

With regard to Claim 8, Yoshimoto et al. discloses in Figure 1, wherein said gas supply pipe (6a) is extended into said inlet manifold (6) and an extended part of said gas supply pipe (6a) which can be seen extending from the end plate (3) has at least one hole at the end of the pipe.

Claim Rejections - 35 USC § 103

5. The rejection of Claim 2 under 35 U.S.C. 103(a) as being unpatentable over Yoshimoto et al. (US 20030104265 A1), as applied to Claims 1, 3-6 and 8 above, and in further view of Sugita et al. (US 6,723,463 B2), is maintained. The rejection is repeated below for convenience.

Yoshimoto et al. discloses the polymer electrolyte fuel cell in paragraph 4 above, but does not disclose wherein at least one gas flow channel has a serpentine configuration which is arranged substantially parallel to gravity.

Sugita et al. discloses a fuel cell stack (1) formed with a plurality of fuel cell units (2) stacked together in a horizontal direction, each of the fuel cell units comprising a solid polymer electrolyte membrane, an anode electrode, a cathode electrode and a pair of separators (17) which hold the anode and cathode electrodes (column 1 lines 44-58). The surface (17a) of the separator (17) is provided with grooves for gas flow and communicating with gas supply port (25a) and gas exhaust port (25b). The grooves together form a serpentine shape with one and a half alternating turns in the surface of

Art Unit: 1795

the separator (column 6 lines 21-31). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use a separator having grooves or flow channels with a serpentine configuration in the fuel cell of Yoshimoto et al., because Sugita et al. teaches the gas traveling along longer passages as compared to the case in which passages are horizontally formed parallel to the long side of the separator and, therefore, the gas can be effectively utilized and a high power generation efficiency can be obtained (column 6 lines 47-53).

6. The rejection of Claim 9 under 35 U.S.C. 103(a) as being unpatentable over Yoshimoto et al. (US 20030104265 A1), as applied to Claims 1, 3-6 and 8 above, and in further view of Kumata et al. (US 4,508,793), is maintained. The rejection is repeated below for convenience.

Yoshimoto et al. discloses the polymer electrolyte fuel cell in paragraph 4 above, but does not disclose wherein said extended part of said gas supply pipe has a plurality of holes in the top thereof, which are spaced apart at decreasing intervals inwardly.

Kumata et al. discloses a fuel cell system with an air chamber (30) having air pipes (45) arranged in the air chamber, parallel to a peripheral face of the sub-stack, and at the air inlet manifold (17a) to feed air uniformly into the air channels (column 6 lines 60-68). The air pipes (45) have a row of air blow holes (46) along its length (column 7 lines 1-4). The diameter of the air blow holes (46) are is reduced step by step from the open end to the closed end within the range of 7 to 12 mm (column 7 lines 17-26). Therefore, at the time of the invention it would have been obvious to one of

ordinary skill in the art to use a gas supply pipe having a plurality of holes spaced apart at decreasing intervals inwardly in the fuel cell of Yoshimoto et al., because Kumata et al. teaches the arrangement of spaced apart holes allows the gas to be introduced into the channels uniformly, thus making it possible to prevent the fuel cell system from deterioration of characteristics due to un-uniform flow of the gas (column 7 lines 56-65).

Response to Arguments

7. Applicant's arguments filed April 25, 2008, have been fully considered but they are not persuasive.

Applicant makes note that the instant application claims priority to JP 2003-104917, which has a filing date of April 9, 2003, and this priority document supports the subject matter set forth in the pending claims. As the effective filing date thereof predates the publication date of Yoshimoto, which is June 5, 2003, it is respectfully submitted that Yoshimoto does not constitute valid prior art to the instant application. A certified English translation of JP 2003-104917 is being filed concurrently with this Amendment in order to perfect the claim of priority.

Examiner asserts that the effective filing date of Yoshimoto is NOT June 5, 2003, but instead is September 6, 2002, because it claims priority to PCT/JP02/01153 which has a filing date of February 12, 2002 and a publication date of September 6, 2002. Therefore, the certified English translation of the priority document of the instant application does not overcome the current 102(e) rejection by Yoshimoto.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571)272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karie O'Neill
Examiner
Art Unit 1795

KAO

/Mark Ruthkosky/

Primary Examiner, Art Unit 1795